

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO. 10/727,197	FILING DATE 12/03/2003	FIRST NAMED INVENTOR R. Bharat Rao	ATTORNEY DOCKET NO. 2002P19746US02
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REMARKS

In the Office Action, the Examiner rejected claims 25-51 pursuant to 35 U.S.C. § 101 as directed to non-statutory subject matter. Regarding claim 25, the Examiner indicated that the recited step of a knowledge base comprising domain specific criteria does not involve, use or advance the technological arts since the steps may be performed in the mind of a user. The knowledge base is shown in the Figures as a database, but the Examiner apparently is treating the knowledge base differently. Accordingly, claim 25 has been amended to clarify without narrowing that the knowledge base is part of an electronic database. An electronic database is a structure or memory for storing data, so may not be performed in the mind of a user. Claim 25 is directed to statutory subject matter.

Regarding claim 39, the format of the claim has been clarified. The amendment from "a" to "in a" program storage device provides for the preamble to be included within the claim. Claim 39 is directed to statutory subject matter.

Claims 1-24 were rejected pursuant to 35 U.S.C. § 103(a) as being unpatentable over Evans (U.S. Patent No. 6,347,329) in view of Harvin et al. (Managed Care: New Financial Practice/Strategies . . .). The Examiner cited to Harvin et al. by the author's first name, Virginia. Applicants respectfully request reconsideration of the rejection of claims 1-24, including independent claim 1.

Independent claim 1 recites obtaining a medical record comprising structured and unstructured data, analyzing at least the unstructured data with a computer and automatically extracting billing information as a function of the analysis. As noted by the Examiner, Evans does not disclose analyzing with a computer "from at least the unstructured data source" and "automatically extracting billing information from the medical record as part of the analysis." Instead, the Examiner alleges these features to be known in the art as evidenced by Harvin et al.

However, in the Office Action dated April 8, 2005, the Examiner noted that Harvin et al. also do not disclose analyzing "with a device" "from at least the unstructured data source" and "automatically extracting billing information from the medical record as part of the analysis." This admission was made after rejecting claim 1 based on Evans in view of Harvin et al. in the first Office Action, dated Sept. 10, 2004. The Examiner's own admission indicates that Harvin et al. does not show the limitations of claim 1 also not shown by Evans.

The Examiner's admission was correct. Harvin et al. do not show obtaining medical records from unstructured data and analyzing the unstructured data with a computer. Harvin et al.

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disclose a computer database with billing information (page 4, paragraph 3). The medical record is used to provide customized lists of common complaints, to provide automatic alerts, to provide reminders, for checking drug interactions and to provide access to data (page 4, paragraph 3). The data is collected into a known structure at the point-of-care (page 4, paragraph 4 - "By structuring the data we capture at the point of care, . . ."). The patient records are part of a "structured Oracle database" (page 4, paragraph 3). Such structure allows searches (page 4, paragraph 7). Harvin et al., like Evans, uses a structured medical record for searching. There is no suggestion for analyzing, by a computer, unstructured data and extracting billing information as a function of the analysis.

The prior art mentions using billing codes, and using domain knowledge. However, extracting billing codes in Evans or Harvin does not involve analyzing unstructured data with the aid of a device, such as a computer, to automatically extract the billing information, such as codes. Evans and Harvin et al. only disclose collecting code data prospectively or in a structured format for analysis. Furthermore, both Evans and Harvin et al. refer to the use of domain knowledge in order to improve clinical workflow prospectively, such as using knowledge about guidelines to provide alerts to care providers about what treatment to give the patient next. However, they do not disclose using domain knowledge to extract information from already existing unstructured patient records.

Claims 25-42 were rejected pursuant to 35 U.S.C. § 103(a) as being unpatentable over Evans (U.S. Patent No. 6,347,329) in view of Harvin et al. (Managed Care: New Financial Practice/Strategies . . .) and further in view of iMedica (iMedica Creates the Most Comprehensive Charting . . .)(cited to as PR Newswire by the Examiner). Applicants respectfully request reconsideration of the rejection of claims 25-42, including independent claims 25 and 39.

Independent claim 25 recites an engine of a device that analyzes structured and unstructured data as a function of domain specific criteria and extracts billing information as a function of the analysis.

As discussed above for claim 1, Harvin et al. disclose point-of-care data collection into a structured database, but do not suggest analysis by a computer of unstructured data.

Similarly, Evans discloses point-of-care data collection, but does not suggest analysis by a computer of unstructured data. In the rejection of claim 1, the Examiner noted that Evans does not disclose the analysis of unstructured data limitation, but this rejection of claim 25 relies on Evans for this disclosure. The Examiner previously made this same rejection in a first Office Action dated

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Sept. 10, 2004, but then acknowledged Evans did not disclose this limitation in the second Office Action data dated April 8, 2005.

Evans does not disclose analysis by a computer of unstructured data. Evans provides a "point-of-care" system for entering patient data immediately at the point-of-care (col. 2, lines 33-37). The medical record of a patient is gathered in a wide variety of data formats, including legacy data (col. 2, lines 43-49), patient identifiers (col. 3, lines 9-13), x-ray images (col. 5, lines 6-8), laboratory test results (col. 5, lines 6-8), medications (col. 5, lines 6-8), and text (col. 9, lines 5-12). Some data may be converted to supported formats (col. 10, lines 28-31). Based on access to this information, the physician can enter results, evaluate medical history, annotate images and prescribe medications or treatments (col. 5, lines 18-26). Different modules communicate to assist in identifying further needs during physician review (col. 6, lines 19-41; col. 7, lines 62-66). Practice guidelines are also included to assist the physician (col. 7, lines 62-66). Other than these data collection functions, the system can create graphs, identify medication interactions, allow user selection, allow user sorting and allow user analysis (col. 15, lines 11-18). For example, the diagnosis module communicates with a procedure module to obtain information on proper administration of procedures indicated by diagnosis (col. 11, lines 15-35). Evans collects data and perform simple searching for use by the physician at the point of care. Some data is converted from one structure to another, so the simple searching may be based on a known data structure. There is no disclosure of analysis by a device of unstructured data, such as free text or images. The free text and images are merely provided for physician review and annotation. Searching is provided by gathering data in a known structure, but Evans does not suggest analysis by a machine of unstructured data.

iMedica also gathers data at the point-of-care (page 2, paragraph 11). Documentation is provided electronically, and a physician is guided through medical choices and diagnosis codes (page 2, paragraph 5). The physician chooses information from the knowledge base to make charting easier (page 2, paragraph 5). Billing codes may be created based on these choices (page 3, paragraph 13), and drug interactions may be automatically checked (page 2, paragraph 1). However, the program is not a diagnostic tool (page 2, paragraph 5). iMedica merely assists the physician in electronic chart making. iMedica does not suggest analysis by a device. iMedica collects data in a specific record, so also does not suggest analysis by a device of unstructured data. None of the three references (Evans, Harvin et al. and iMedica) suggest this limitation of claim 25.

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Independent claim 39 recites instructions for a program implemented on a machine for analyzing unstructured data. As discussed above for claims 1 and 25, Evans, Harvin et al. and iMedica do not suggest this limitation.

Dependent claims 2-24, 26-38 and 40-51 depend from the independent claims discussed above, so are allowable for the same reasons. Further limitations of the dependent claims distinguish from the cited references. The examples below deal with the citation relied on by the Examiner.

Claims 5 and 42 recite extracting all codes supported by patient information based on all domain-specific criteria. Harvin et al. merely link to billing information (page 4, paragraph 3). There is no disclosure of extracting all codes supported by the patient record and no disclosure of extracting as a function of all domain-specific criteria. iMedica provides automatic coding (page 2, paragraphs 2 and 3), but does so based only on the final physician diagnosis (page 2, paragraph 5). iMedica does not disclose extracting all codes supported by the information.

Claims 6 and 7 recite institution-specific domain knowledge. The cited paragraph of Harvin et al. (page 2, paragraph 1) notes the existence of an institution, but in the context of having financial liability. There is no disclosure of institution-specific domain knowledge used for analysis by a device. Similarly, required reporting of page 2, paragraph 7 does not provide for hospital based domain knowledge used for analysis by a computer.

Claims 8 and 9 recite condition or disease specific knowledge used for analysis of patient data by a device. Col. 7, lines 1-9 of Evans cited by the Examiner relate to mere data entry by a physician, not knowledge used for searching the patient record by a computer. Col. 14, lines 45-67 relate to creating an audit trail of data entry, not condition or disease specific knowledge for analyzing the patient record by a computer.

Claims 10, 11, 24, 28 and 29 recite an explanation with a pointer to information supporting the extracted billing information. The pointers of Evans at col. 8, lines 34-65 are mere references to other data sources making up the patient record, so are not pointers to information supporting extracted data. Similarly, Harvin et al., on page 4, paragraphs 3 and 4 link to billing information, but do not disclose pointing to supporting information providing the basis for the billing codes.

Claims 12, 13, 14, 30 and 31 recite automatically generating a medical claim for the patient using the extracted billing information. Other than not extracting the billing information as claimed,

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Harvin et al. link to billing information and automate some other aspects (page 4, paragraphs 3 and 7). However, Harvin et al. do not disclose automatically generate a medical claim for a patient.

Claims 15, 16, 17, 32, 33 and 34 recite automatic updating using the extracted billing information. Harvin et al. collect the information at the point-of-care (page 4, paragraph 4). Billing forms are simultaneously generated with an original transaction (page 3, paragraph 3), but there is no suggestion to automatically update the record with extracted billing information.

Claims 18, 19, 20, 35 and 36 recite automatic assessment of the quality of information of the medical record using the extracted billing information. Harvin et al. assume the medical record data is accurate (page 5, paragraphs 4 and 6).

Claims 21, 22, 23 and 37 recite automatically determining an expected amount of reimbursement. Harvin et al. note case tracking (page 2, paragraph 7) and the importance of identifying profitability (page 4, paragraph 1). Harvin et al. relies on data entry to assist these goals, not on any determination of an expected amount of reimbursement.

Claims 43-51 recite inferring a diagnosis and associated billing information. iMedica is not a diagnostic tool (page 2, paragraph 5). Intuitive charting assists in entering a patient record (page 2, paragraph 5), but intuitive charting is not inferring a diagnosis. Recommending billing codes based on the chart (page 3, paragraph 1) is also not inferring a diagnosis.

Claims 44, 47 and 50 recite inferring without reference to diagnosis codes. iMedica provide billing code recommendations based on the chart after guiding the chart creation. Automatic HCFA/Medicare compliant coding is provided (page 2, paragraph 2). There is no disclosure that the billing codes are not based on diagnosis codes.

Claims 45, 48 and 51 recite determining a probability as part of inferring a diagnosis. Harvin et al. note various statistics calculated from the structured database and indicate that the possibilities for such reports are endless (page 4, paragraph 7). However, there is no suggestion to determine a probability as part of inferring a diagnosis with a computer.

In view of the foregoing amendments and remarks, Applicant submits that all of the claims are in proper format and are patentably distinct from the prior art of record and are in condition for allowance.

The Examiner is invited to contact the undersigned at the telephone number listed below with any questions concerning this application.

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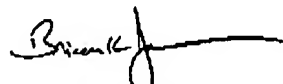
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